Claims

What is claimed is:

1. A method of determining a clock signal relative to data, said method comprising:

receiving a plurality of data units in parallel over a plurality of optical fibers of a link, wherein said plurality of data units have a relationship with one another;

obtaining from at least one data unit of said plurality of data units a clock signal; and

adjusting the clock signal relative to a selected position of at least one data unit of said plurality of data units.

2. The method of claim 1, further comprising using the adjusted clock signal to regulate a flow of output of one or more data units of the plurality of data units, wherein the one or more data units are output in parallel.

3. The method of claim 2, wherein the output is from one or more analog-to-digital converters coupled to one or more optical receivers receiving the one or more data units over one or more optical fibers of the plurality of optical fibers.

4. The method of claim 1, further comprising using the adjusted clock signal to regulate a serial flow of output of one or more data units of the plurality of data units.

5. The method of claim 1, further comprising:

determining an offset of an edge of the clock signal with respect to at least one edge of at least one data unit; and

using the offset in the adjusting.

6. The method of claim 5, wherein said determining comprises:

determining a plurality of offsets with respect to a plurality of data units;

averaging the offsets to determine an average offset; and

using said average offset in the adjusting.

7. The method of claim 1, wherein said adjusting comprises adjusting the clock signal dynamically in real-time in response to changing data rates on the link.

8. The method of claim 1, wherein said adjusting at least minimizes timing jitter between at least one data unit of said plurality of data units and at least one of the clock signal and one or more other data units of said plurality of data units.

9. The method of claim 1, wherein said adjusting at least minimizes skew between at least one data unit of said plurality of data units and at least one of the clock signal and one or more other data units of said plurality of data units.

10. The method of claim 1, wherein the selected position is a middle position of at least one data unit.

11. The method of claim 1, wherein said receiving comprises inputting said plurality of data units to a plurality of optical receivers coupled to said plurality of optical fibers.

12. The method of claim 1, wherein said receiving comprises inputting said plurality of data units to a charge coupled device coupled to said plurality of optical fibers.

13. The method of claim 12, further comprising providing the adjusted clock signal to said charge coupled device to regulate a serial flow of output of one or more data units from the charge coupled device.

14. The method of claim 1, wherein said receiving comprises inputting said plurality of data units to a shift register coupled to said plurality of optical fibers.

15. The method of claim 14, further comprising providing the adjusted clock signal to said shift register to regulate a serial flow of output of one or more data units from the shift register.

16. The method of claim 1, wherein the relationship of the plurality of data units comprises the plurality of data units being elements of a same data structure.

17. The method of claim 1, wherein said obtaining comprises using a phase lock loop to recover the clock signal from said at least one data unit.

18. A receiver portion of a communications link comprising:

a plurality of optical fibers to receive a plurality of data units in parallel, wherein the plurality of data units have a relationship with one another; and

an adjust unit to adjust a clock signal relative to a selected position of at least one data unit of said plurality of data units, wherein said clock signal is obtained from at least one data unit of the plurality of data units.

19. The receiver portion of claim 18, further comprising a plurality of optical receivers coupled to said plurality of optical fibers to receive said plurality of data units from said plurality of optical fibers.

20. The receiver portion of claim 19, further comprising one or more analog-to-digital converters coupled to one or more optical receivers of said plurality of optical receivers to output one or more data units.

21. The receiver portion of claim 20, wherein the adjusted clock signal is used to regulate a flow of output from the one or more analog-to-digital converters.

22. The receiver portion of claim 19, further comprising a phase lock loop coupled to at least one optical receiver of said plurality of optical receivers to recover from said at least one data unit the clock signal to be adjusted.

23. The receiver portion of claim 22, further comprising a comparator coupled to said phase lock loop to determine an offset of an edge of the clock signal with respect to at least one edge of at least one data unit, wherein the offset is usable by the adjust unit.

24. The receiver portion of claim 23, wherein said comparator is adapted to determine a plurality of offsets with respect to a plurality of data units and to average the offsets to determine an average offset usable by the adjust unit.

25. The receiver portion of claim 18, further comprising means for using the adjusted clock signal to regulate a flow of output of one or more data units of the plurality of data units, wherein the one or more data units are output in parallel.

26. The receiver portion of claim 18, further comprising means for using the adjusted clock signal to regulate a serial flow of output of one or more data units of the plurality of data units.

27. The receiver portion of claim 18, wherein said adjust unit adjusts the clock signal dynamically in real-time in response to changing data rates on the link.

28. The receiver portion of claim 18, wherein the adjusting at least minimizes timing jitter between at least one data unit of said plurality of data units and at least one of the clock signal and one or more other data units of said plurality of data units.

29. The receiver portion of claim 18, wherein the adjusting at least minimizes skew between at least one data unit of said plurality of data units and at least one of the clock signal and one or more other data units of said plurality of data units.

30. The receiver portion of claim 18, wherein the selected position is a middle position of at least one data unit.

31. The receiver portion of claim 18, further comprising a charge coupled device coupled to said plurality of optical fibers to receive said plurality of data units from said plurality of optical fibers.

32. The receiver portion of claim 31, further comprising a feed back loop coupled to said adjust unit and to said charge coupled device to provide the adjusted clock signal to the charge coupled device to regulate a serial flow of output of one or more data units from the charge coupled device.

33. The receiver portion of claim 18, further comprising a shift register coupled to said plurality of optical fibers to receive said plurality of data units from said plurality of optical fibers.

34. The receiver portion of claim 33, further comprising a feed back loop coupled to said adjust unit and to said shift register to provide the adjusted clock signal to the shift register to regulate a serial flow of output of one or more data units from the shift register.

35. The receiver portion of claim 18, wherein the relationship of the plurality of data units comprises the plurality of data units being elements of the same data structure.

36. The receiver portion of claim 18, wherein said receiver portion is part of a transceiver of the communications link.

37. A receiver portion of a communications link comprising:

optical means for receiving a plurality of data units in parallel, wherein the plurality of data units have a relationship with one another; and

means for adjusting a clock signal relative to a selected position of at least one data unit of the plurality of data units, wherein the clock signal is obtained from at least one data unit of the plurality of data units.

38. The receiver portion of claim 37, further comprising means for recovering from said at least one data unit the clock signal to be adjusted.

39. The receiver portion of claim 37, further comprising means for determining an offset of an edge of the clock signal with respect to at least one edge of at least one data unit, wherein the offset is usable by the means for adjusting.

40. The receiver portion of claim 37, wherein the adjusted clock signal is used to regulate a flow of output of one or more of the data units.

41. A multichannel communications link, comprising:

a transmitter that transmits data in parallel over a plurality of optical fibers, wherein a relationship exists between the parallel data; and

a receiver that receives the data transmitted over the plurality of optical fibers, wherein the receiver aligns a clock, recovered from at least a portion of the data, to at least a portion of the data.

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